CIVIL EXPERTS
ISO 9001:2008
CONSULTANTS & TESTING CENTER

174, Sri Ranga Complex
Amrutha Nagar Main Road
New Bank Colony, Konanakunte
Bangalore - 560 062.
Mobile : +91 97429 59595
Tele/Fax : 080-2632 2565
E-mail : civilexpertsltd@gmail.com
URL : www.civilexperts.in

NABL ACCREDITED AS PER ISO/IEC 17025:2005

Job No.: CECTC-MK-PMC-2014-15

Date: 04.06.2014

TEST REPORT

Client	:	**Executive Engineer,** Rajarajeshwari Nagara Division, BBMP, Bangalore.
Agency	:	**Sri. M. Krishnamurthy**, Contractor, Bangalore.
Name of the work	:	Providing and Laying HDPE Water line in HMT Layout Block 4in JP Park Ward No 17.
Reference	:	EE/RRND/PR/06-1/2013-14 Dated: 07.01.2014
Source of location	:	Hot mix Plant, Bangalore
Date of testing	:	04.06.2014

The results of the tests conducted on the bitumen sample using for Semi Dense Bituminous Concrete

Sl. No	Description	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	64	60 to70
2	Softening point, ^{0}C	50	Min. 45
3	Ductility at 27^{0}C, cm	100 >	Min. 50
4	Flash Point, ^{0}C	286	Min. 220

Note:

⇒ This test report shall not be reproduced except in full, without written approval of the laboratory.
⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory.
⇒ Any Query regarding the report must be reported within 15 days from the date of testing.

For Civil Experts

Authorised Signature

Scanned by CamScanner

CIVIL XPERTS
ISO 9001:2008
CONSULTANTS & TESTING CENTER

174, Sri Ranga Complex
Amrutha Nagar Main Road
New Bank Colony, Konanakunte
Bangalore - 560 062.
Mobile : +91 97429 59595
Tele/Fax : 080-2632 2565
E-mail : civilexpertsltd@gmail.com
URL : www.civilexperts.in

NABL ACCREDITED AS PER ISO/IEC 17025:2005

Job No.: CECTC-MK-PMC-2014-15 Date: 04.06.2014

Aggregate Impact Value

IS: 2386 Part IV

Client	**Executive Engineer,** Rajarajeshwari Nagara Division, BBMP, Bangalore.
Agency	**Sri. M. Krishnamurthy,** Contractor, Bangalore.
Name of the Work	Providing and Laying HDPE Water line in HMT Layout Block 4in JP Park Ward No 17.
Reference	EE/RRND/PR/06-1/2013-14 Dated: 07.01.2014
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	04.06.2014

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	392	396	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	94	92	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	298	304	
4	Aggregate Impact value = percent fines			
	100* (W_2/W_1) percent	23.98	23.23	23.61

Comments:

→ Maximum allowable Aggregate Impact value for Semi dense Bituminous Concrete is 24%

Note:

⇒ This test report should not be reproduced except in full, without written approval of the laboratory

⇒ The results indicated above are based on the tests carried out on the samples received in the laborat

⇒ Any Query regarding the report must be reported within 15 days from the date of testing.

For Civil Experts

Authorised Signature

Scanned by CamScanner

CIVIL XPERTS
ISO 9001:2008
CONSULTANTS & TESTING CENTER

174, Sri Ranga Complex
Amrutha Nagar Main Road
New Bank Colony, Konanakunte
Bangalore - 560 062.
Mobile : +91 97429 59595
Tele/Fax : 080-2632 2565
E-mail : civilexpertsltd@gmail.com
URL : www.civilexperts.in

NABL ACCREDITED AS PER ISO/IEC 17025:2005

Job No.:CECTC-MK-PMC-2014-15 Date: 04.06.2014

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Executive Engineer,** Rajarajeshwari Nagara Division, BBMP, Bangalore.
Agency	**Sri. M. Krishnamurthy,** Contractor, Bangalore.
Name of Work	Providing and Laying HDPE Water line in HMT Layout Block 4in JP Park Ward No 17.
Reference	EE/RRND/PR/06-1/2013-14 Dated: 07.01.2014
Technical Reference	IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	Bituminous Macadam
Date of Testing	04.06.2014

Result : Flakiness Index = **15.28%**

Elongation Index = **11.29%**

Result : Combined Flakiness & Elongation index **26.57%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Bituminous Macadam is 30%

Note:

→ This test report should not be reproduced except in full, without written approval of the laboratory
→ The results indicated above are based on the tests carried out on the samples recieved in the laboratory
→ Any Query regarding the report must be reported within 15 days from the date of testing.

For Civil Experts

Authorised Signature

Scanned by CamScanner

CIVIL EXPERTS
ISO 9001:2008
CONSULTANTS & TESTING CENTER

174, Sri Ranga Complex
Amrutha Nagar Main Road
New Bank Colony, Konanakunte
Bangalore - 560 062.
Mobile : +91 97429 59595
Tele/Fax : 080-2632 2565
E-mail : civilexpertsltd@gmail.com
URL : www.civilexperts.in

NABL ACCREDITED AS PER ISO/IEC 17025:2005

Job No.: CECTC-MK-PMC-2014-15

Date: 04.06.2014

Specific Gravity And Water Absorption Test
IS: 2386 Part III

Client	**Executive Engineer,** Rajarajeshwari Nagara Division, BBMP, Bangalore.
Agency	**Sri. M. Krishnamurthy,** Contractor, Bangalore.
Name of the Work	Providing and Laying HDPE Water line in HMT Layout Block 4in JP Park Ward No 17.
Reference	EE/RRND/PR/06-1/2013-14 Dated: 07.01.2014
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	04.06.2014

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2020	2018	2016	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1265	1263	1261	
4	Weight of saturated surface dry aggregate in air	W_3 g	2018	2020	2017	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	753	757	756	
6	Weight of oven dried aggregate	W_4 g	2010	2012	2011	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.669	2.658	2.660	2.662
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.698	2.686	2.681	2.689
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.40%	0.40%	0.30%	0.36%

Comments:
⇒ Maximum allowable Aggregate Water absorption value for Semi Dense Bituminous Concrete is 2.0%

Note:
⇒ This test report should not be reproduced except in full, without written approval of the laboratory
⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory
⇒ Any Query regarding the report must be reported within 15 days from the date of testing.

For Civil Experts

Authorised Signature

Scanned by CamScanner

CIVIL EXPERTS
ISO 9001:2008
CONSULTANTS & TESTING CENTER

174, Sri Ranga Complex
Amrutha Nagar Main Road
New Bank Colony, Konanakunte
Bangalore - 560 062.
Mobile : +91 97429 59595
Tele/Fax : 080-2632 2565
E-mail : civilexpertsltd@gmail.com
URL : www.civilexperts.in

NABL ACCREDITED AS PER ISO/IEC 17025:2005

Job No.: CECTC-MK-PMC-2014-15

Date: 05.06.2014

Aggregate Gradation Test
IS : 2386 Part I

Client	**Executive Engineer,** Rajarajeshwari Nagara Division, BBMP, Bangalore.
Agency	**Sri. M. Krishnamurthy,** Contractor, Bangalore.
Name of the Work	Providing and Laying HDPE Water line in HMT Layout Block 4in JP Park Ward No 17.
Reference	EE/RRND/PR/06-1/2013-14 Dated: 07.01.2014
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	05.06.2014

Total Weight of Sample: **5270** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Semi Dense Bituminous concrete Grade-II specification as per MORTH
13.2	486	9.22	9.22	90.78	79 - 100	
9.5	424	8.05	17.27	82.73	70 - 88	
4.75	654	12.41	29.68	70.32	53 - 71	
2.36	652	12.37	42.05	57.95	42 - 58	
1.18	534	10.13	52.18	47.82	34 - 48	
0.600	615	11.67	63.85	36.15	26 - 38	
0.300	722	13.70	77.55	22.45	18 - 28	
0.150	420	7.97	85.52	14.48	12 - 20	
0.075	397	7.53	93.06	6.94	4 - 10	

Total Weight of Sample: **5250** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
19	0	0	0	100	100	Gradation satisfies Semi Dense Bituminous concrete Grade-II specification as per MORTH
13.2	624	11.89	11.89	88.11	79 - 100	
9.5	521	9.92	21.81	78.19	70 - 88	
4.75	615	11.71	33.52	66.48	53 - 71	
2.36	524	9.98	43.50	56.50	42 - 58	
1.18	609	11.60	55.10	44.90	34 - 48	
0.600	590	11.24	66.34	33.66	26 - 38	
0.300	450	8.57	74.91	25.09	18 - 28	
0.150	615	11.71	86.63	13.37	12 - 20	
0.075	402	7.66	94.29	5.71	4 - 10	

Note:
⇒ This test report should not be reproduced except in full, without written approval of the laboratory
⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory
⇒ Any Query regarding the report must be reported within 90 days from the date of testing.

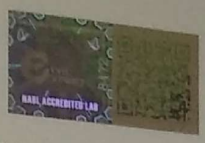
For Civil Experts

Authorised Signature

Scanned by CamScanner

CIVIL XPERTS
ISO 9001:2008
CONSULTANTS & TESTING CENTER

174, Sri Ranga Complex
Amrutha Nagar Main Road
New Bank Colony, Konanakunte
Bangalore - 560 062.
Mobile : +91 97429 59595
Tele/Fax : 080-2632 2565
E-mail : civilexpertsltd@gmail.com
URL : www.civilexperts.in



NABL ACCREDITED AS PER ISO/IEC 17025:2005

Job No.: CECTC-MK-PMC-2014-15 Date: 05.06.2014

BITUMEN CONTENT AND GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE

AASHTO T 164 & AASHTO T 30

CLIENT	**Executive Engineer,** Rajarajeshwari Nagara Division, BBMP, Bangalore.
AGENCY	**Sri. M. Krishnamurthy,** Contractor, Bangalore.
NAME OF THE WORK	Providing and Laying HDPE Water line in HMT Layout Block 4in JP Park Ward No 17.
REFERENCE	EE/RRND/PR/06-1/2013-14 Dated: 07.01.2014
DATE OF TESTING	05.06.2014

BITUMEN CONTENT DETERMINATION

Description	Sample 1	Sample 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	474	475
3. Weight of Asphalt and Mineral matter Extracted, g	26	25
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g	-	-
6. Weight of Bitumen Extracted, g. (corrected)	26	25
7. Bitumen content in %	5.20	5.00
8. Average	5.10	

GRADATION AFTER EXTRACTION

TABLE - 1

SIEVE SIZE	Percent Passing, %		JOBMIX
mm	Sample 1	Sample 2	Gradation
19	100.00	100.00	100
13.2	92.60	91.80	79 - 100
9.5	82.30	83.45	70 - 88
4.75	59.30	58.63	53 - 71
2.36	52.40	53.26	42 - 58
1.18	44.60	45.12	34 - 48
0.600	33.20	32.65	26 - 38
0.300	25.90	26.65	18 - 28
0.150	19.60	18.54	12 - 20
0.075	6.23	5.98	4 - 10

Note:
⇒ This test report should not be reproduced except in full, without written approval of the laboratory
⇒ The results indicated above are based on the tests carried out on the samples received in the laboratory
⇒ Any Query regarding the report must be reported within 15 days from the date of testing.

For Civil Experts

Authorised Signature

Scanned by CamScanner